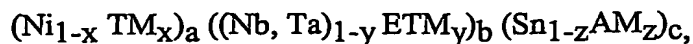


## WHAT IS CLAIMED IS:

1. A glass forming alloy having a composition given by:



5 where ETM is an early transition metal selected from the group of Ti, Zr, Hf, Cr, Mo, and W; TM is a transition metal selected from the group of Mn, Fe, Co, and Cu; and AM is an additive material selected from the group of B, Al, Si, and Sb;

where a is in the range of from 50 to 65, b in the range of 30 to 45, c is in the range of 2 to 10 in atomic percentages; and

- 10 where x is less than 0.2, y is less than 0.3, z is less than 0.5, and the sum of x, y and z is less than about 0.5.

2. The glass forming alloy described in claim 1 wherein a is in the range of from 55 to 62, b in the range of 33 to 40, and c is in the range of 2 to 8 in atomic percentages; and

15 where x is less than 0.1, y is less than 0.2, z is less than 0.3, and the sum of x, y and z is less than about 0.3.

3. The glass forming alloy described in claim 2 wherein ETM is an early transition metal selected from the group of Ti, Zr, and Ta; TM is a transition metal selected from the group of Fe, Co and Cu; and AM is an additive material selected from the group of B and Si.

4. The glass forming alloy described in claim 1 wherein the alloy has a  $\Delta T_{sc}$  of more than 40 °C.

5. The glass forming alloy described in claim 1 wherein the liquidus temperature of the alloy is 1160 °C or less.

6. The glass forming alloy described in claim 1 wherein the alloy has a Vickers hardness greater than 940 Kg/mm<sup>2</sup>.

7. The glass forming alloy described in claim 1 wherein the alloy has a yield strength of greater than 2 GPa.

8. The glass forming alloy described in claim 1 wherein the alloy has a  
5 yield strength of about 3 GPa or more.

9. The glass forming alloy described in claim 1 wherein the alloy has a Young's modulus of greater than 160 GPa.

10. The glass forming alloy described in claim 1 wherein the alloy has a  
10 ratio of glass transition temperature to liquidus temperature of around 0.6 or more.

11. The glass forming alloy described in claim 1 wherein the alloy is  
15 substantially amorphous.

12. The glass forming alloy described in claim 1 wherein the alloy contains a ductile crystalline phase precipitate.

13. The glass forming alloy described in claim 1 wherein the alloy is  
20  $\text{Ni}_{60}\text{Nb}_{37}\text{Sn}_3$ .

14. The glass forming alloy described in claim 1 wherein the alloy is  $\text{Ni}_{55}\text{Fe}_5\text{Nb}_{35}\text{Sn}_5$ .

15. The glass forming alloy described in claim 1 wherein the alloy is  
25  $\text{Ni}_{60}\text{Nb}_{35}\text{Sn}_3\text{B}_2$ .

16. The glass forming alloy described in claim 1 wherein the alloy is  
30  $\text{Ni}_{55}\text{Nb}_{31}\text{Sn}_9\text{Cu}_5$ .

17. The glass forming alloy described in claim 1 wherein the alloy is  $\text{Ni}_{55}\text{Nb}_{28}\text{Sn}_6\text{Zr}_3\text{Co}_5\text{Ti}_3$ .

18. An article made of an amorphous alloy of basic composition given by:  
35  $(\text{Ni}_{1-x}\text{TM}_x)_a ((\text{Nb}, \text{Ta})_{1-y}\text{ETM}_y)_b (\text{Sn}_{1-z}\text{AM}_z)_c$ ,

where ETM is an early transition metal selected from the group of Ti, Zr, Hf, Cr, Mo, and W; TM is a transition metal selected from the group of Mn, Fe, Co, and Cu; and AM is an additive material selected from the group of B, Al, Si, and Sb;

where a is in the range of from 50 to 65, b in the range of 30 to 45, c is in the range of 2 to 10 in atomic percentages;

where x is less than 0.2, y is less than 0.3, z is less than 0.5, and the sum of x, y and z is less than about 0.5.

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19. The article described in claim 18 wherein a is in the range of from 55 to 62, b in the range of 33 to 40, and c is in the range of 2 to 8 in atomic percentages; and

10 where x is less than 0.1, y is less than 0.2, z is less than 0.3, and the sum of x, y and z is less than about 0.3.

20. The article described in claim 19 wherein ETM is an early transition metal selected from the group of Ti, Zr, and Ta; TM is a transition metal selected from the group of Fe, Co and Cu; and AM is an additive material selected from the group of B and Si.

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21. The article described in claim 18 wherein the amorphous alloy has a  $\Delta T_{sc}$  of more than 40 °C.

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22. The article described in claim 18 wherein the liquidus temperature of the amorphous alloy is 1160 °C or less.

23. The article described in claim 18 wherein the amorphous alloy has a Vickers hardness greater than 940 Kg/mm<sup>2</sup>.

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24. The article described in claim 18 wherein the amorphous alloy has a yield strength of greater than 2 GPa.

25. The article described in claim 18 wherein the amorphous alloy has a yield strength of about 3 GPa or more.

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26. The article described in claim 18 wherein the amorphous alloy has a Young's modulus greater than 160 GPa.

27. The article described in claim 18 wherein the amorphous alloy has a ratio of glass transition temperature to liquidus temperature of around 0.6 or more.

5 28. The article described in claim 18 wherein the alloy contains a ductile crystalline phase precipitate.

29. The article described in claim 18 wherein the article is three dimensional having a size of least 0.5 mm in each dimension.

10 30. The article described in claim 18 wherein the article is three dimensional having a size of least 1.0 mm in each dimension.